

Remarks:

Reconsideration of the application, as amended herein, is respectfully requested.

New claims 5 and 6 are presently pending in the application. Claims 1 - 4 have been canceled from the present application, **without prejudice**, for possible pursuit in a future continuation application.

New claims 5 and 6 substantively correspond to former claims 2 and 3, respectively, pending at the time of mailing of an Office Action dated May 15, 2002. In that past Office Action of May 15, 2002, claims 2 and 3 were objected to as being dependent upon a rejected base claim, but indicated as being allowable if rewritten in independent form. In that Office Action, it was stated that claims 2 and 3 were allowable because:

no prior art has come to light in which either selenium or sulfur was the dopant of the stop zone as defined by claim. Nor is the substitution of either selenium or sulfur for either gold or platinum in the primary reference obvious in view of prior art.

However, in the most recent final Office Action dated June 6, 2005, ("**final Office Action**"), then pending claims 2 and 3 (depending from an amended claim 1), were rejected based on a combination of references. More particularly, in item 2 of the section entitled Claim Rejections - 35 U.S.C. § 103, of

the **final Office Action**, claims 1 and 3 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over U. S. Patent No. 5,668,385 to Bauer et al ("**BAUER**") in view of German Patent publication DE 3917769 A1 to Gerstenmaier ("**GERSTENMAIER**"). In item 3 of the section entitled Claim Rejections - 35 U.S.C. § 103, of the **final Office Action**, claim 4 was additionally rejected under 35 U.S.C. § 103(a) as allegedly being obvious over **BAUER** in view of **GERSTENMAIER**. In item 4 of the section entitled Claim Rejections - 35 U.S.C. § 103, of the **final Office Action**, claim 2 was further rejected under 35 U.S.C. § 103(a) as allegedly being obvious over **BAUER** and **GERSTENMAIER**, further in view of U. S. Patent No. 5,684,323 to Tohyama ("**TOHYAMA**").

Applicants respectfully traverse the above rejections, as applied to presently pending claims 5 and 6.

More particularly, Applicants' claim 5 recites, among other limitations:

said stop zone having foreign atoms, **including sulfur atoms**, with at least one energy level within the band gap of the semiconductor and at least 200 meV away from both a conduction band and a valence band of the semiconductor. [emphasis added by Applicants]

Applicants' claim 6 recites, among other limitations:

said stop zone having foreign atoms, **including selenium atoms**, with at least one energy level within the band gap of the semiconductor and at least 200 meV away from both a conduction band and a valence band of the semiconductor. [emphasis added by Applicants]

As such, Applicants' claims 5 and 6 require, among other limitations including a stop zone (i.e., wherein the passage of the electric field to the p-emitter at reverse voltage is prevented) including sulfur atoms or selenium atoms, respectively. Applicants' claims 5 and 6 further require, among other limitations that the recited sulfur atoms or selenium atoms, respectively, in the stop zone have at least one energy level within the band gap of the semiconductor and at least 200 meV away from both a conduction band and a valence band of the semiconductor.

However, **BAUER** fails to teach, among other limitations of Applicants' claims, doping atoms of a substance having at least one energy level within the band gap of the semiconductor and at least 200 meV away from both a conduction band and a valence band of the semiconductor. Further, **BAUER** fails to teach or suggest the feature of using sulfur or selenium as the doping atoms.

Rather, in the final Office Action, **GERSTENMAIER** is cited as allegedly disclosing the above elements of Applicants' claims missing from **BAUER**. More particularly, **GERSTENMAIER** is

alleged to disclose a thyristor including an additional dopant material having an energy level of about 300 meV below the conduction band and more than 300 meV above the valence band. The additional dopant material of **GERSTENMAIER** has to be an energy level below the energy level of the dopant material determining the conductivity of the semiconductor layer. **GERSTENMAIER** also suggests to use selenium as an appropriate dopant for silicon, in order to compensate for the temperature-dependency of the semiconductor material.

It is stated on page 3 of the final Office Action that:

. . .it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper.

However, it is must also be recognized that the references so combined, must provide some motivation for making the combination. However, Applicants believe that the cited references lack the necessary motivation to combine the references to arrive at Applicants' claimed invention.

More particularly, Applicants believe that it would be doubtful that a person of skill in his technical field would combine **BAUER** with **GERSTENMAIER** (or, in the case of current

claim 5, with **GERSTENMAIER** and **TOHYAMA**) in order to solve the technical problem solved by the claimed invention, and thus not be motivated to combine the references as alleged in the **final Office Action**. Rather, compensating for the **temperature dependency** of a semiconductor material (i.e., the problem addressed in **GERSTENMAIER**) and providing a **stop-layer** (i.e., wherein the passage of the electric field to the p-emitter at reverse voltage is prevented as in **BAUER** and the instant application) **are two completely different technical problems**. There is no teaching or suggestion in the cited reference that solving one of the above problems helps to solve the other. In fact, there is no motivation in the references to combine the **temperature compensating** feature of **GERSTENMAIER** with the **stop-layer** feature of **BAUER**, to arrive at Applicants' claimed invention.

Similarly, the references lack any motivation to replace the selenium in **GERSTENMAIER** with the sulfur of **TOHYAMA**. Again, **GERSTENMAIER** is addressed to the problem of **temperature dependency** of a semiconductor material, while the **final Office Action** alleges that the **TOHYAMA** reference is directed to using sulfur as a dopant in silicon for its deep ionization level, so as to tailor the **current-voltage** characteristics of the silicon, and thus, would not serve as motivation to make the combination suggested in the Office Action. As such,

Applicants believe that there is no teaching, suggestion, or motivation, to combine **BAUER** with **GERSTENMAIER** and/or **TOHYAMA**, to arrive at Applicants' claimed invention.

It is accordingly believed that none of the references, whether taken alone or in any combination, teach or suggest the features of claims 5 and 6. Claims 5 and 6 are, therefore, believed to be patentable over the art.

In view of the foregoing, reconsideration and allowance of claims 5 and 6 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out.

Additionally, the present is being filed in connection with a Request for Continuing Examination, and the fee therefore. As such, please consider the present as a petition for a three month extension of time from the initial shortened statutory period for a response to the **final Office Action**, and please provide a three month extension of time, to and including, December 6, 2005 to file the present RCE and Preliminary Amendment.

The extension fee for response within a period of 3 months pursuant to Section 1.136(a) and in accordance with Section 1.17 is enclosed herewith.

Please provide any additional extensions of time that may be necessary and charge any other fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,



For Applicants

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